

## DETERMINATION AND APPLICATIONS OF THREE-PHASE POWER FACTOR

### ABSTRACT OF THE DISCLOSURE

A three-phase power system comprising a simple, low cost processor and associated software algorithms for determining true three-phase power factor without having to convert between wye and delta configurations and without having to employ trigonometric calculations or having to measure phase. The processor monitors the source power lines of the three-phase power system by sampling voltage levels and current levels from these power lines and generates data values representative of instantaneous and average three-phase power factor from these levels. The processor uses these data values of power factor and algorithms to detect momentary power loss conditions and surge conditions and takes action to protect the motor and load of the three-phase power system from damage when these conditions occur.